



**National Aeronautics  
and Space Administration**

**July 23, 1998  
NRA 98-OSS-08**

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**RESEARCH ANNOUNCEMENT**

**JOINT U.S./RUSSIAN RESEARCH  
IN  
SPACE SCIENCE PROGRAM**

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**Notice of Intent Due:  
Proposals Due:**

**SEPTEMBER 23, 1998  
NOVEMBER 23, 1998**

OMB Approval No. 2700-0087

Joint U.S./Russian Research in Space Science Program

NASA Research Announcement  
Soliciting Basic Research Proposals

NRA 98-OSS-08  
Issued: July 23, 1998  
Notice of Intent Due: September 23, 1998  
Proposals Due: November 23, 1998

Office of Space Science  
National Aeronautics and Space Administration  
Washington, DC 20546-0001

## Joint U.S./Russian Research in Space Science Program

The Office of Space Science (OSS) of the National Aeronautics and Space Administration (NASA) releases this NASA Research Announcement (NRA) to solicit proposals for supporting basic research, analysis, and technology investigations that establishes scientific partnerships between U.S. and Russian space scientists in order to conduct research that seeks to understand natural phenomena in the NASA Office of Space Science disciplines of planetary science, astrophysics, astrobiology, and space physics.

Further information about OSS's research interests may be found by links through the OSS home page at URL <<http://www.hq.nasa.gov/office/oss/>>

Appendix A of this NRA contains a detailed description of the program for which proposals are solicited. Appendix B provides the standard NASA guidance for responding to NASA Research Announcements. Appendix C provides amendatory guidance to Appendix B for the specific proposal format and submission requirements for this NRA. Note that Appendix C incorporates many formats and/or procedures that are anticipated to be standard for future OSS NRA's. Therefore, interested proposers are advised to read Appendix C in its entirety before writing their proposals. Special attention is also directed to the requirement for electronic submissions to a World Wide Web site of both a *Notice of Intent (NOI)* to propose and a combined *Cover Page/Proposal Summary*. Since transmission difficulties may arise anywhere through the Internet, starting at the proposer's institution, at any of its intermediate nodes, and/or at NASA's receiving sites, proposers are encouraged to submit these items well in advance of their respective due dates to allow for resolution of any difficulties (Note: an "edit" function is provided at the Web site to allow changes after the original submissions but before their respective due dates).

It is anticipated that approximately \$400 thousand dollars per year will be available for the Joint U.S./Russian Research in Space Science (JURRISS) Program. Investigations may be proposed for either a one, two, or three-year period of performance. NASA plans to select 10-20 investigations.

Recommendations for funding will be based on the evaluation of each proposal's science and technical merits, its relevance to the objectives as described in Appendix A of this NRA, and its requested budget. In all cases, the Government's obligation to make awards is contingent upon the availability of appropriated funds from which payment can be made and the receipt of proposals that NASA determines are acceptable for award under this NRA.

Participation in this program is open to all categories of U.S. and Russian organizations, including educational institutions, profit and, nonprofit organizations, NASA Centers, and other U.S. Government agencies. Historically Black Colleges and Universities (HBCU's), other minority educational institutions, and small businesses and organizations owned and controlled by socially and economically disadvantaged individuals or women are particularly encouraged to apply.

The entirety of this NRA may be found and downloaded in a variety of standard formats by opening "Research Opportunities" from the menu at the OSS homepage on the World Wide Web at URL <<http://www.hq.nasa.gov/office/oss/>>.

The following summary information applies to this NRA:

- NRA identifier: NRA 98-OSS-08
- Date of issue: July 23, 1998
- Notice of Intent (NOI) to propose -
  - Due date: September 23, 1998
  - Address for electronic submission: URL <<http://props.oss.hq.nasa.gov>>  
Call Ms. Debra Tripp at (202) 554-2775 for assistance.
- Address for electronic submission of proposal *Cover Page/Proposal Summary*:  
URL <<http://props.oss.hq.nasa.gov>>  
Call Ms. Debra Tripp at (202) 554-2775 for assistance.
- Submission of Proposal -
  - Required number: 15 copies plus signed original.
  - Due date: By close of business on November 23, 1998
  - Address for delivery by U.S. Postal Service, personal courier, or commercial service:  
JURRISS Program NRA  

Jorge Scientific Corporation  
Suite 700  
400 Virginia Avenue, SW  
Washington, DC 20024  
Telephone: (202) 554-2775
- Selecting Official: Director  
Research Program Management Division  
Office of Space Science
- Announcement of selections: 4 months after proposal due date.
- Initiation of funding for new awards: 2 months after proposal selection.

- Program Scientist for further information:

Mr. Joseph M. Boyce  
Research Program Management Division  
Code SR  
Office of Space Science  
National Aeronautics and Space  
Administration  
Washington, DC 20546-0001  
Phone: (202) 358-0302  
E-mail: jboyce@hq.nasa.gov

Notice of new electronic notification service for NASA OSS research announcements: NASA OSS has implemented an electronic notification system for all of its research program announcements. Subscription to this service may be immediately made by selecting the menu item "Subscribe to E-mail Announcements" on the OSS homepage at URL <<http://www.hq.nasa.gov/office/oss/>>, and then following the instructions within the subsection entitled "Space Science Research Announcements." This electronic service will notify subscribers of all future NASA OSS program announcements, regardless of the science topic or type of announcement (about 20-25 per year).

Your interest and cooperation in responding to this NRA are appreciated.

Wesley T. Huntress, Jr.  
Associate Administrator  
Office of Space Science

## APPENDICES

### A. DESCRIPTION OF PROGRAM OPPORTUNITY

1. Introduction
2. Description of the Opportunity
  - 2.1. Research Opportunity
  - 2.2. Funding
3. Source of Information about Potential Collaborative Investigations
4. Source of Information and Data

### B. INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS FOR SOLICITED BASIC RESEARCH PROPOSALS

### C. SPECIFIC GUIDANCE FOR PROPOSAL PREPARATION AND SUBMISSION

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## DESCRIPTION OF THE PROGRAM OPPORTUNITY

### JOINT U.S./RUSSIAN RESEARCH IN SPACE SCIENCE PROGRAM

#### 1. Introduction

The objective of the Joint U.S./Russian Research in Space Science (JURRISS) program is to establish scientific partnerships between U.S. and Russian space scientists in order to conduct research that seeks to understand natural phenomena in a broad range of space science disciplines. The JURRISS program supports joint scientific investigations through small grants to pairs of U.S. and Russian Principal Investigators (PI's) that have formed research teams.

#### 2. Description of Opportunity

##### 2.1 Research Opportunity

The JURRISS program supports joint U.S./Russian investigations in the NASA Office of Space Science disciplines of planetary science, astrophysics, astrobiology, and space physics. These investigations may involve laboratory studies, theory, data analysis and synthesis, simulations, studies of analogs, and development of models. The program is open to all categories of Russian and U.S. organizations, including educational institutions, profit and nonprofit organizations, NASA Centers, and other U.S. Government agencies. Historically Black Colleges and Universities (HBCU's), other minority educational institutions, and small businesses and organizations owned and controlled by socially and economically disadvantaged individuals and women are particularly encouraged to apply.

Close collaboration between Russian and U.S. PI's is necessary to meet the goals of this program. To facilitate close collaboration, proposers are required to form bilateral science teams, which include a U.S. PI and a Russian Co-PI. Selected U.S. PI's will be awarded a grant through their home institution by NASA, with support for the Russian Co-PI provided through the selected PI's institution (see section 3 below).

A single proposal that outline the roles of each PI is required. The PI and Co-PI are responsible for the formulation and implementation of their own part of the joint research. The U.S. PI will

be responsible for assisting in the preparation of the joint proposal. In addition, the U.S. PI is responsible for submission of the proposal from the joint research team to NASA.

It is anticipated that scientific results of this program will be reported at an annual conference attended by all PI's. This conference will be held alternatively in the U.S. and Russia, with the first one to be held in the U.S. These conferences will be organized by an ad hoc organizing committee of PI's.

## 2.2. Funding

It is estimated that the NASA funding level for the JURRISS program in Fiscal Year (FY) 1999 will be about \$400K, which is expected to support investigations of approximately 10-20 joint U.S./Russian research teams. It is anticipated that support for each grant will not exceed about \$25K per year, with approximately \$15K for support of the Russian Co-PI, and approximately \$10K per year for support of the U.S. PI. Investigations may be proposed for either a one, two, or three-year period of performance.

## 3. Source of Information About Potential Collaborative Investigations

The East/West Space Science Center at the University of Maryland is a source of information about the JURRISS Program. It will be a clearinghouse for information about potential collaborators and their investigations. In addition, information is also available about possible methods for funding Russian scientists through universities and other organizations. Scientists interested in conducting collaborative research in disciplines relevant to the JURRISS program, but who have yet to identify a specific collaborator and/or require assistance in developing a mechanism for funds transfer to Russian Co-PI's, are encouraged to contact:

Dr. Lev Mukhin  
East/West Space Science Center  
University of Maryland  
College Park, MD 20742-3280

Telephone: (301) 405-8056  
FAX: (301) 405-9966

## 4. Sources of Information and Data

The National Space Science Data Center (NSSDC) stores digital and other data from completed flight experiments. Requests from U.S. investigators for data products and information may be made to:



National Space Science Data Center  
Code 633  
Goddard Space Flight Center  
National Aeronautics and Space Administration  
Greenbelt, MD 20771-0001

Telephone: (301) 286-6695  
E-mail: : [request@nssdc.gsfc.nasa.gov](mailto:request@nssdc.gsfc.nasa.gov)

while requests from non-U.S. investigators for NSSDC data products and product availability information may be made to:

World Data Center A for Rockets and Satellites  
Code 633  
Goddard Space Flight Center  
National Aeronautics and Space Administration  
Greenbelt, MD 20771-0001  
USA

Telephone: (301) 286-6695  
E-mail: [request@nssdc.gsfc.nasa.gov](mailto:request@nssdc.gsfc.nasa.gov)

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INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS  
FOR SOLICITED BASIC RESEARCH PROPOSALS

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NASA Federal Acquisition Regulations (FAR) Supplement (NFS) Version 89.90  
Part 1852.235-72 (January 1997)  
(accessible through URL <<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>>, open “Part 1852.228 to 1852.241” from the menu).

(a). General.

- (1) Proposals received in response to a NASA Research Announcement (NRA) will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a preaward synopsis published for individual proposals.
- (2) A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.
- (3) NRA's contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRA's.
- (4) A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to an NRA. NASA will determine the appropriate instrument. Contracts resulting from NRA's are subject to the Federal Acquisition Regulation (FAR) and the NASA FAR Supplement (NFS). Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NPG 5800.1).
- (5) NASA does not have mandatory forms or formats for responses to NRA's; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.
- (6) To be considered for award, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting

organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.

(b). NRA-Specific Items. Several proposal submission items appear in the NRA itself: the unique NRA identifier, when to submit proposals, where to send proposals, number of copies required, and sources for more information. Items included in these instructions may be supplemented by the NRA.

(c). Proposal Content. The following information is needed to permit consideration in an objective manner. NRA's will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

(1) *Transmittal Letter or Prefatory Material*.

- (i) The legal name and address of the organization and specific division or campus identification, if part of a larger organization;
- (ii) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;
- (iii) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;
- (iv) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;
- (v) Identification of other organizations that are currently evaluating a proposal for the same efforts;
- (vi) Identification of the NRA, by number and title, to which the proposal is responding;
- (vii) Dollar amount requested, desired starting date, and duration of project;
- (viii) Date of submission; and
- (ix) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

(2) *Restriction on Use and Disclosure of Proposal Information*. Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following Notice on the title page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the Notice. In any event, information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the Notice.

## Notice

### Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract(or other agreement) is awarded on the basis of this proposal, the Government shall have the right to use and disclose this information (data) to the extent provided in the contract(or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

(3) *Abstract.* Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

(4) *Project Description.*

(i) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance, relation to the present state of knowledge, and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(ii) When it is expected that the effort will require more than one year, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

(5) *Management Approach.* For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described.

(6) *Personnel.* The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications, and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with

information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

(7) *Facilities and Equipment.*

(i) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use. Include evidence of its availability and the cognizant Government points of contact.

(ii) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non research purposes should be explained.

(8) *Proposed Costs.*

(i) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages, fringe benefits, equipment, expendable materials and supplies, services, domestic and foreign travel, ADP expenses, publication or page charges, consultants, subcontracts, other miscellaneous identifiable direct costs, and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all staffing data in terms of staff-months or fractions of full-time.

(ii) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired, purpose and estimated number and lengths of trips planned, basis for indirect cost computation (including date of most recent negotiation and cognizant agency), and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases.

(iii) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

(9) *Security.* Proposals should not contain security classified material. If the research requires access to or may generate security classified information, the submitter will be required to comply with Government security regulations.

(10) *Current Support.* For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

(11) *Special Matters.*

(i) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(ii) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

(d). Renewal Proposals

(1) Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

(2) NASA may renew an effort either through amendment of an existing contract or by a new award.

(e). Length. Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments.

(f). Joint Proposals.

(1) Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

(2) Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

(g). Late Proposals. A proposal or modification received after the date or dates specified in an NRA may be considered if doing so is in the best interests of the Government.

(h). Withdrawal. Proposals may be withdrawn by the proposer at any time before award. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

(i). Evaluation Factors

(1) Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

(2) Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

(3) Evaluation of its intrinsic merit includes the consideration of the following factors of equal importance:

(i) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.

(ii) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(iii) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.

(iv) Overall standing among similar proposals and/or evaluation against the state-of-the-art.

(4) Evaluation of the cost of a proposed effort may include the realism and reasonableness of the proposed cost and available funds.

(j). Evaluation Techniques. Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases, proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is scientifically and programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.

(k). Selection for Award.

(1) When a proposal is not selected for award, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

(2) When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation. The contracting officer may request certain business data and may forward a model award instrument and other information pertinent to negotiation.

(l). Cancellation of NRA. NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation.



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**SPECIFIC GUIDANCE FOR PROPOSAL PREPARATION AND SUBMISSION**

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1. Introduction
  - 1.1 General Provisions and Policies
  - 1.2 Types of Proposing Institutions
  - 1.3 Proposal Personnel
  - 1.4 Proposal Evaluation
  - 1.5 Proposal Selection and Implementation
2. Notice of Intent to Propose
3. “Renewal” Proposals
4. Guidelines for Preparation of Proposal
  - 4.1 Standard Formats for Proposals
  - 4.2 Checklist For Proposal Preparation and Submission
  - 4.3 Details of Proposal Contents
    - Cover Page/Proposal Summary
    - Table of Contents
    - Summary of Personnel Commitments and Costs
    - Budget Summary
    - Scientific/Technical/Management Section
    - Facilities and Equipment
    - Curriculum Vitae
    - Current and Pending Support
    - Co-I and Collaborator Letter(s) of Commitment
    - Budget Details
    - Progress Report
    - Proposing Institutional Budget
5. Forms and Certifications
  - Budget Summary and Instructions
  - Certifications (*Debarment...; Lobbying; and Civil Rights*)

# **1. Introduction**

## **1.1 General Provisions and Policies**

- *Relationship of Appendices B and C.* The material in Appendix C augments and supplements the material in Appendix B of this NRA. In case of conflict, the material in Appendix C takes precedence.
- *Freedom to Propose to this NRA.* NASA OSS welcomes proposals in response to this NRA from all qualified proposers. Participation in this program is open to all categories of U.S. and Russian organizations, including educational institutions, profit and nonprofit organization, NASA Centers, and other U.S. Government agencies. Historically Black Colleges and Universities (HBCU's), other minority educational institutions, and small businesses and organizations owned and controlled by socially and economically disadvantaged individuals or women are particularly encouraged to apply. In accordance with Federal statutes and NASA policy, no eligible applicant shall be excluded from participation in, denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NASA on the grounds of race, color, creed, age, sex, national origin, or disability.
- *Anticipated Level of Competition for Selection.* Prospective proposers are advised that OSS program solicitations have traditionally been extremely competitive. Because of funding limitations, typically as few as one out of four to five proposals have been selected for funding in the last several years.
- *Public Access to Data.* As a matter of NASA policy, all data taken in the performance of a NASA research award are considered to be public domain. In addition, NASA may judge that new data obtained through an investigation selected through this NRA may be of value to the science community at large. If so, NASA reserves the right to direct that these data be deposited in an approved public data archive and, if so, will negotiate appropriate funding to enable the reduction and calibration of the data into a format amenable for use by peer scientists.
- *NASA-Provided Data and Computational Infrastructure.* OSS provides data and computational infrastructure to support its research community. Information on current science data centers and services can be found on the World Wide Web at <<http://www.hq.nasa.gov/office/oss/ssds>>. Any need for high performance computing resources for the proposed research should be explicitly described in the proposal, including the computing system, location, and an estimate of the amount of computing time needed.

NASA high performance computing resources may be made available to successful investigations from facilities at either the Jet Propulsion Laboratory (JPL) and the NASA Goddard Space Flight Center (GSFC):

- Resources at JPL include a Cray J-90 system with a peak speed of 24 GFLOP's and a 256 processor Hewlett-Packard Exemplar parallel computer with a peak speed of 184

GFLOP's. For more information about JPL resources, contact Mr. Larry Eversole at telephone (818) 353-2786, or E-mail at <eversole@galaxy.jpl.nasa.gov>.

- High performance computing resources at GSFC include a Cray J-90 system with a peak speed of 19.2 GFLOP's and a 512 processor Cray T3E parallel computer with a peak speed of 305 GFLOP's. More information is available on the World Wide Web at <<http://nccsinfo.gsfc.nasa.gov/NCCS>> and <<http://nccsinfo.gsfc.nasa.gov/ESS>>.

## 1.2 Types of Proposing Institutions

NASA OSS accepts proposals in response to its NRA's from all types of U.S. institutions. As an aid to NASA in deciding on the appropriate funding instrument in the event that the proposal is selected for funding, one of the categories listed below must be indicated at the appropriate line on the *Cover Page* (see Section 4.3 of this Appendix):

*Educational institution* -- A university or two- and four-year college (including a U.S. community college) accredited to confer degrees beyond that of the K-12 grade levels (all such institutions are considered by NASA as nonprofit).

*Nonprofit, nonacademic organization* -- A private or Government supported research laboratory, university consortium, museum, observatory, or similar organization that supports advanced research but whose principal charter is not for training of students.

*Commercial organization* -- An organization of any size that operates for profit (i.e., on a fee basis) with appropriate capabilities and interests to conduct basic research in science.

*NASA Center* -- All NASA field Centers and the Jet Propulsion Laboratory.

*Other Federal Agency* -- Any non-NASA, U.S. Federal Executive agency or Federally Funded Research and Development Center (FFRDC) sponsored by a Federal agency.

*Unaffiliated U.S. resident* -- Any person residing in the U.S., whether a U.S. citizen or resident alien, who has the capabilities and access to facilities for carrying out the proposed project and who, if selected, agrees to fiscal arrangements that, in NASA's opinion, ensures responsible management of appropriated Federal funds.

## 1.3 Proposal Personnel

Every organization submitting a proposal in response to this NRA must designate a *Principal Investigator* (PI) who will be responsible for the quality and direction of the entire proposed investigation and for the use of all awarded funds. A Russian *Co-Principal Investigator* (*Co-PI*) must also be designated. The Co-PI will be responsible for the quality and direction of the portion of the investigation from the Russian participating organization.

NASA strongly encourages proposers to identify only the most critically important personnel to aid in the execution of their proposals. Such additional personnel may be identified as *Co-Investigators* (Co-I's) who are critical for the successful completion of an investigation through the contribution of unique expertise and/or capabilities, and who serve under the direction of the PI whether or not they receive compensation directly under the award. A Co-I must have a well-defined role in the investigation that is explicitly defined in the *Management* section of the

proposal (see Section 4.3 below). In addition, for all proposals submitted in response to this NRA, evidence of commitment of a Co-I to participate in the proposed investigation is required by way of a brief letter from him/her even if they are from the same PI institution (see Section 4.3 below).

Owing to unique circumstances, there are two informal subcategories of Co-I's that a proposal may identify in its Management section (see Section 4.3 below) as appropriate:

A Co-I may be designated as the *Science PI* for those cases where the proposing institution does not permit that individual to formally serve as the PI as defined above (e.g., nontenure faculty, research associates, and/or postdoctoral personnel). In such a case, the Science PI will be understood by NASA to be in charge of the scientific direction of the proposed work, although the formally designated PI is still held responsible for the overall direction of the effort and use of funds.

An *Institutional PI* is a Co-I at an institution other than the PI's that is making a major contribution to the proposal (e.g., a substantial portion of an experimental investigation) and who serves as the point of contact at the Co-I's institution. (Note: In some cases NASA may elect to provide an award directly to that Co-I institution with the Institutional PI serving as the "PI" for what otherwise would be a subcontract from the proposing PI institution. However, in this case, the proposal's designated PI is still held responsible by NASA for the overall scientific direction of the proposed effort.)

Finally, proposals may also identify *Collaborators* who are individuals that are less critical to the overall proposal than a Co-I but who are committed to provide a focused though unfunded contribution to a specific task. As noted above for Co-I's, proposals submitted in response to this NRA must include a brief letter of commitment from each Collaborator that describes their specific, intended contribution to the investigation.

#### 1.4 Proposal Evaluation

Although OSS secures scientific and technical evaluations from appropriately qualified peers of the proposers, proposers are expected to provide sufficient detail to enable evaluation by persons who are knowledgeable of but not necessarily specialists in the proposed research. The evaluation criteria in Appendix B, part (i), as amended below, applies to this NRA:

##### (i) Evaluation Factors.

- (1) Unless otherwise specified in the NRA, the principal criteria (in descending order of importance) that apply in evaluating a proposal are its intrinsic merit, its relevance to NASA's objectives, and its cost.
- (2) Evaluation of intrinsic merit includes consideration of the following factors listed in approximate order of decreasing importance:

The overall scientific and/or technical merit of the proposal and/or unique and innovative methods, approaches, concepts, or advanced technologies demonstrated by the proposal, and the potential impact of the proposed research to its field;

The qualifications, capabilities, and experience of the proposing Principal Investigator and all other personnel who are proposing to help achieve the proposal's objectives;

The proposing institution's capabilities, related experience, facilities, techniques, or unique contributions of these that are integral factors for achieving the proposal objectives; and

The overall standing of the proposal against the known state of the art.

(3) Relevance to NASA's objectives shall mean relevance to the specific objectives and goals as described in this NRA for which the proposal is submitted, as well as more generally to the NASA OSS science themes and goals as defined in the most current OSS strategy documents.

(4) Evaluation of the cost of a proposed effort shall include the realism and reasonableness of the proposed cost and the comparison of that proposed cost to available funds.

## 1.5 Proposal Selection and Implementation

Following peer evaluation, the cognizant Discipline Scientist will further review the scientifically and technologically top rated proposals against the programmatic objectives, program balance, and available financial resources. Based on the entirety of these factors, including judgment of the comparison of the scope and importance of the proposed investigation to its cost, the Discipline Scientist then will present a recommendation for selection to the NASA Selecting Official (identified in this NRA's covering summary letter). The Selecting Official will select for funding those proposals deemed worthy as judged against all of the evaluation criteria and for which financial resources are available.

Each proposer will be notified by postal or electronic mail of their selection or nonselection and offered a debriefing to explain that decision. Note that NASA reserves the right to offer selection of only a portion of a proposed investigation; in such a case the proposer will be given the opportunity to accept or decline the offer. Those recommended for selection will be informed of the recommended amount of their award and that their organization will be contacted by a NASA Procurement Office to arrange for an appropriate funding instrument (normally a grant or contract). In all cases, awards are made to the proposing institution, not directly to the proposal's PI. Note that no financial commitment on the part of NASA or the Government may be inferred from any communication, even if in writing, from the NASA Discipline Scientist or Selecting Official. Only a NASA Procurement Office can make financial commitments, obligations, or awards on behalf of the Agency and authorize the expenditure of funds.

## **2. Notice of Intent to Propose**

In order to plan for a timely and efficient peer review process, a *Notice of Intent* (NOI) to propose is requested by the deadline in the Cover Letter for this NRA. NASA understands that the submission of a NOI is neither a commitment to submit a proposal nor is information contained therein considered binding on the submitter. NOI's are to be submitted electronically by entering the requested information through the World Wide Web site identified in the Cover Letter (a telephone point of contact is also provided for anyone without access to the Web or who experiences difficulty in using the specified site). As a rule, the NOI Web site will request at least the following information:

- reference to this NRA by its alpha-numeric identifier (this may be included on the Web site template);
- the U.S. Principal Investigator's name, physical mailing address, phone number, and E-mail address;
- the Russian Co-Principal Investigator's name, physical address, phone number, and E-mail address;
- the name(s) and institution(s) of any Co-Investigator(s) known by the NOI due date;
- a descriptive title of the intended investigation; and,
- a brief description of the investigation to be proposed.

A separate NOI must be submitted for each intended proposal. Note that this NOI may take the form of being the preliminary version of the proposal *Cover Page/Proposal Summary* (see Section 4.3 below). If so, the Web site will provide a password to the user for future use in updating this information for the final *Cover Page/Proposal Summary* as the deadline for submission of the final proposal approaches (see further discussion in Section 4.3 below).

### 3. **“Renewal” Proposals**

[Reference: Appendix B.(d)]

The term “renewal” proposal has had ambiguous meanings in previous OSS NRA’s, having been used to mean both a proposal that seeks to extend to its next logical step an existing NASA research award whose period of performance is concluding, as well as the request for the additional funding needed to complete a selected multiple year award. To avoid this ambiguity, OSS wishes to discontinue use of this term. Instead, all proposals in response to this OSS NRA will be considered “new” regardless of their previous funding history, whereas the continued funding of an existing multiple year award will be referred to as its “annual funding allotment.” Directions for the submission of the progress reports that are necessary for an annual funding allotment may be obtained directly from the relevant Discipline Scientist.

Proposers who seek to extend an existing NASA research activity that is relevant to this NRA and whose funding will expire in the first year during which awards for this NRA will be implemented must identify and document their achievements in two ways (see Section 4.3 below for detailed discussions of all of these proposal elements):

- (i) the existing NASA grant or contract number must be entered in the indicated place on the new proposal’s *Cover Page*; and
- (ii) a separate, short *Progress Report*, including citations to published papers derived from the existing task, must be included as part of the proposal’s ancillary material.

Such follow-on proposals must otherwise fully comply with all guidelines for preparation, content, and submission for proposals as outlined in this NRA, and they will be reviewed on an equal basis with all other submitted proposals. If such a follow-on proposal is selected, NASA reserves the right to fund the investigation either by amendment of the existing award or by a totally new award. In either case, the starting date of the new award will follow the expiration of the existing one.

## 4. Guidelines for Preparation of Proposals

### 4.1 Standard Formats for Proposals

Unless otherwise directed, the standard, default formats for proposals submitted in response to this NRA are as follows:

- Typewritten, English text using an easily read font of no more than ~15 characters per inch on white, 8.5x11 inch paper (or A4 stock for non-U.S. proposals), in single or double column format with at least 2.5 cm margins.
- Double-sided printing preferred, but not required.
- Bound only with metal staples, i.e., no cardboard or plastic covers, or permanent binders (to facilitate recycling), and with an easily disassembled original copy (to enable NASA to make additional copies, if needed).
- No fold out pages, colored illustrations, or photographs unless critical for the unique display of important proposal data.
- No material submitted on any type of electronic media, nor reference to sites on the World Wide Web for material needed to complete or review the proposal.
- Use of only metric and standard astronomical units.
- A limit of 15 pages for the *Scientific/Technical/Management Section* (see further below), including references and figures, where each side of a sheet containing text or illustration counts as a page and each “n-page” fold-out counts as n-pages.

### 4.2 Checklist For Proposal Preparation and Submission

All proposals are to include the following materials in the order and using the titles as given. Details for each item are given in the same order in Section 4.3.

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#### PRESUBMISSION ACTIVITIES

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\_\_\_\_\_ *Notice of Intent to Propose* - electronically submitted to the World Wide Web site by the due date given in the cover letter of this NRA.

\_\_\_\_\_ *Cover Page/Proposal Summary* - electronically submitted to the World Wide Web site given in the cover letter of this NRA in time to procure original signatures on a printed hard copy as required for submission with the copies of the proposal itself by the proposal Due Date in this NRA’s cover letter.



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CONSTITUENT PARTS OF A PROPOSAL  
(in order of assembly)

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	<u>Page Limits</u>
• <u>MAIN PROPOSAL</u>	
___ <i>Cover Page/Proposal Summary</i> (as printed from Web site)	s req'd
___ <i>Table Of Contents</i> (optional)	1
___ <i>Summary Of Personnel Commitments and Costs</i>	1
___ <i>Scientific/Technical/Management Section</i>	15*
___ <i>Facilities and Equipment</i> (as needed and appropriate)	2
• <u>ANCILLARY INFORMATION:</u>	
___ <i>Curriculum Vitae</i>	for the PI: 3 optional for each Co-I: 1
___ <i>Current and Pending Support</i>	1 as req'd
___ <i>Co-I and/or Collaborator Letter(s) of Commitment</i>	1 as req'd
___ <i>Budget Summary</i> (one for <u>each</u> year of proposed effort)	1 as req'd
___ <i>Budget Details</i> (narrative)	1 as req'd
___ <i>Progress Report</i> (if proposal is follow-on to an existing task)	2
___ <i>Reprint/Preprint</i> (optional; =2 only if relevant to proposal)	not applicable
___ <i>Proposing Institution Budget</i> (optional, in format of choice)	1 as req'd

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\* unless otherwise specified in Appendix A.

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SUBMISSION ACTIVITIES

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\_\_\_\_\_ *Cover Page/Proposal Summary* - print out final and complete version from Web site in time to secure the Principal Investigator, Co-Principal Investigator (a facsimile copy of the signature is acceptable) and Authorizing Institutional Official signatures, to serve as the preface to the proposal (the *Cover Page/Proposal Summary* with original signatures must preface the original copy of the proposal).

\_\_\_\_\_ Deliver specified number of hard copies of proposal to the specified address by close of business on the Due Date (see the summary cover letter of this NRA).

#### 4.3 Details of Proposal Contents

All proposals in response to this OSS NRA should be assembled with the following parts and in the order listed. Proposals that omit required or appropriate parts may be returned without review. For completeness, each of the items below is cross-referenced to the corresponding part of Appendix B of this NRA. Note that several parts of Appendix B are not specifically cited but should also be considered for a complete understanding of all the policies and provisions for proposals solicited through this NRA.

- *Cover Page/Proposal Summary* [Reference: Appendix B.(c)(1) and (3)]. All proposals must be prefaced by an integrated *Cover Page/Proposal Summary* that contains important, required information (see below). This item is produced by electronically entering the requested information through the World Wide Web site specified in the summary cover letter of this NRA and then printing out a hard copy of the final material (Note: a telephone point of contact is also identified for any proposer without access to the Web or who experiences difficulty in using the specified Web site). This printed hard copy is then used to obtain original signatures of the PI and an official from the proposing institution to submit with the original copy of the proposal. In addition, reproductions of this original *Cover Page/Proposal Summary* are used to preface the required printed copies of the proposal.

Upon accessing the specified Web site, at least the following information for the *Cover Page* will be requested (Note: additional programmatic information may be requested as specified in Appendix A of this NRA):

The alpha-numeric identifier and name of this NRA (Note: these may already be included on the electronic form on the Web site).

The proposing Principal Investigator's name and full physical, institutional mailing address, telephone and facsimile numbers, and E-mail address.

The proposing Co-Principal Investigator's name and full physical, institutional mailing address, telephone and facsimile numbers, and E-mail address.

An open block for the PI signature and date on the printed hard copy.

An open block for the Co-PI signature and date on the printed hard copy.

A descriptive title of proposed investigation.

The Grant or Contract Number of any existing NASA award for which the newly proposed work is a logical, justified follow-on activity.

The name(s), institutional affiliation(s), and E-mail address(es) of any Co-Investigator(s) (Note: all Co-I's listed must also be functionally identified in the proposal).

The physical mailing address, telephone number, and E-mail address of the office of sponsored programs at the proposing institution.

The institutional endorsement, which requires the name and title of the Authorizing Institutional Official, the name of the proposing institution, and, for the hard copy submitted with proposal, a block for a signature and date.

The designation of the type of proposing institution (using the definitions in Section 1.2 above).

The proposed costs both by year and for the total proposed period of performance.

A block of space (about one page in length) will be provided in the electronic *Cover Page/Proposal Summary* form for a self-contained *Proposal Summary* of the proposed research activity. This *Summary* is intended to provide background and perspective to the interested reader and, therefore, should include the following key information:

A description of the key, central objectives of the proposed research in terms that allow a nonspecialist to grasp its essence, and a concise statement of the methods proposed to accomplish those proposed objectives.

A statement of the perceived significance of the proposed work to NASA OSS interests and programs.

If the proposed research is considered to be a continuation of work performed under a previous NASA award, a statement of the accomplishments and citations to published and/or in-press articles derived from that award.

NASA intends to publish the proposal title, the PI's name and institution, and the *Proposal Summary* of every selected investigation in a public data base. Therefore, the *Proposal Summary* should not include proprietary information that would preclude its unrestricted release (see also Appendix B, (a)(2) and (c)(2)).

Changes (such as whiteout or strikethrough) to the printed *Cover Page/Proposal Summary* that is submitted with the proposal are not permitted. Any needed changes to the information that has been submitted electronically may only be made by editing the electronic submission using the instructions of the Web page, after which the revised *Cover Page/Proposal Summary* is then printed for securing the necessary signatures.

Note two special features of the *Cover Page/Proposal Summary*: (i) the authorizing institutional signature now certifies that the proposing institution has read and is in compliance with the three required certifications printed in full (for reference only) at the end of this Appendix), and, therefore, it is not necessary to separately submit these certifications with the proposal; and (ii) electronic submission of only a *Cover Page/Proposal Summary* does not satisfy the deadline for proposal submission; the required number of copies of the proposal, one with original signatures, must be received at the indicated address by the proposal Due Date.

- *Table of Contents*. This proposal item is optional but desirable.
- *Summary of Personnel Commitments and Costs*. The proposal must contain a one page summary that shows, in simple tabular form, the intended work commitment of the PI and Co-PI (and of every Co-I, if any) of their work effort for the proposed investigation both in time (rounded to the nearest 0.01 Work Year) and salary (rounded to the nearest \$1K) for each year of the proposed period of performance.
- *Scientific/Technical/Management Section* [Reference: Appendix B.(c)(4), (5), and (6)]. This section is the main body of the proposal and should cover the following topics in the order given, all within the page limit noted above:

The objectives and expected significance of the proposed research, including a complete description of any instruments or hardware proposed to be built in order to carry out the research (Note: see also the *Facilities and Equipment* section below for the description of critical equipment needed for carrying out the proposed research);

The technical approach and methodology to be employed in conducting the proposed research, including any special facilities of the proposing institution(s) and/or capabilities of the proposer(s) for carrying out the work;

The perceived impact of the proposed work to the state of knowledge in the field and, if the proposal is a direct extension of an existing OSS award, how the proposed work is expected to build on and otherwise extend previous accomplishments;

The relevance of the proposed work to past, present, and/or future NASA OSS programs and interests or to the specific objectives given in this NRA;

An outline of the general plan of work, including anticipated key milestones for accomplishments and the management structure for the proposal personnel; and

A statement of the expected contribution by the PI, Co-PI, and each Co-I identified for the proposal, regardless of whether or not they derive support from the proposed budget.

The *Scientific/Technical/Management Section* must include a list of references to any citations in the main text and may contain illustrations that amplify and demonstrate key points of the proposal (including milestone schedules, as appropriate). Illustrations should be of publication quality, of an easily viewed size, and have self-contained captions that do not contain critical information not provided elsewhere in the proposal.

- *Facilities and Equipment* [Reference: Appendix B.(c)(7)]. If appropriate, this section should be provided to describe any major facilities (including any U.S. Government owned facilities) and/or major test or experiment equipment that is critical for carrying out the proposed project that is already available or would need to be purchased in order to carry out the proposed investigation. In the latter case, these costs must be entered in the proposal *Budget Summary* and described in the *Budget Details* (see further below).

- *Curriculum Vitae* [Reference: Appendix B.(c)(6)]. The PI and Co-PI must include a *Vitae*, not to exceed three pages each, that includes his/her professional background and a bibliography of publications relevant to the proposal. A one page *Vitae* for each Co-I may also be included.

- *Current and Pending Support* [Reference: Appendix B.(c)(10)]. Information must be provided for all ongoing and pending projects and proposals that involve the proposing PI and any Co-I's who are expected to perform a major share of the proposed work. For each such individual and for each of the two categories of awards, namely,

- A. Current Awards (for any of the period that overlaps with the submitted proposal), and
- B. Pending Awards (including the submitted proposal),

the following information must be provided:

- Project Title;
- Sponsoring agency or institution (including point of contact);
- Proposed period of performance and budget; and
- Commitment by PI or Co-I in terms of Full Time Equivalent (FTE) Work Year.

In addition, provide the name of any other institution, including the point of contact with telephone number, to which the proposal (or any part thereof) submitted to this NRA has been or will be submitted for consideration of funding. For such pending research, the PI must notify the Program Scientist identified for this NRA immediately of any proposals that are awarded anytime after the proposal Due Date for this NRA until the time of NASA's selections.

- *Co-I and Collaborator Letter(s) of Commitment.* Every Co-Investigator and/or Collaborator identified as a participant in the proposal's *Scientific/Technical/Management Section* must submit a brief, signed letter of commitment that acknowledges his/her participation. In the case of more than one Co-I and/or Collaborator, a single, multiply-signed letter is preferred to minimize proposal size. In any case, each letter should be addressed to the PI, may be a facsimile, and is required even if the Co-I or Collaborator is from the PI's own institution. The text of this letter should contain the following, or approximately similar, language:

“I(we) acknowledge that I(we) am(are) identified by name as Co-Investigator(s) [or Collaborator(s)] to the investigation entitled <name of proposal> that is submitted by <name of Principal Investigator> to the NASA Research Announcement <alpha-numeric identifier> and that I(we) intend to carry out all responsibilities identified for me(us) in this proposal.”

- *Progress Report.* In accordance with the provisions of Section 3 above, if the proposal is considered to be a logical, follow-on extension of an existing award, a *Progress Report* for the final year of that existing award must be included before a new award will be implemented (assuming that this new proposal is selected).
- *Budget Summary* [Reference: Appendix B.(c)(8)]. Using the form given at the end of this Appendix, a proposal must contain a *Budget Summary* for each year of the proposed effort filled out in accordance with the *Instructions for Budget Summary* on the page that follows this form. (Note: Special attention is directed to the discussion of item 2. *Equipment* on the *Instructions* sheet regarding the proposed purchase of personal computers and/or commercially available software, both of which are considered to be “general purpose equipment.” In the event that a proposal is selected for award, failure to adequately address the provisions of the *Instructions* for item 2.c will require that the NASA awards office contact the proposing institution for the required information, which may delay the award until the purchase is either justified as a direct charge for general purpose equipment or is rebudgeted as an indirect expense.)
- *Budget Details.* In addition to the *Budget Summary* discussed above and in accordance with the *Instructions for Budget Summary* given in Section 6 of this Appendix, the proposing institution

must append sufficient details in narrative format to allow a full understanding of and justification for the proposed budget.

- *Institutional Budget.* The proposing institution may append their proposed budget in their format of choice and without page limit. Note: By 2000, NASA is expected to be operating on the basis of full cost accounting; until then, NASA Center proposals should use the accounting practices that are specified at the time proposals are due.
- *Reprints/Preprints.* Up to two reprints and/or preprints for peer-reviewed publication that are considered critical to the proposal's understanding and/or background may be appended. Nevertheless, note that reviewers will be asked to base their judgments of the merits of a proposal only on its *Scientific/Technical/Management Section*; therefore, proposers should ensure the self consistency and completeness of that *Section*.

## **5. Forms and Certifications**

The following pages contain the required *Budget Summary* form, the *Instructions for Budget Summary*, and, for reference only, copies of the three currently required *Certifications*. A reasonable facsimile of this *Budget Summary* form may be generated by the proposer for submission so long as it contains all the indicated information and lines.

## BUDGET SUMMARY

**For period from \_\_\_\_\_ to \_\_\_\_\_**

- Provide a complete Budget Summary for year one and separate estimated for each subsequent year.
- Enter the proposed estimated costs in Column A (Columns B & C for NASA use only).
- Provide as attachments detailed computations of all estimates in each cost category with narratives as required to fully explain each proposed cost. See *Instructions For Budget Summary* on following page for details.

	<b>A</b>	<b>  NASA USE ONLY  </b>	
		<b>B</b>	<b>C</b>
1. <u>Direct Labor</u> (salaries, wages, and fringe benefits)	_____	_____	_____
2. <u>Other Direct Costs:</u>			
a. Subcontracts	_____	_____	_____
b. Consultants	_____	_____	_____
c. Equipment	_____	_____	_____
d. Supplies	_____	_____	_____
e. Travel	_____	_____	_____
f. Other	_____	_____	_____
3. <u>Facilities and Administrative Costs</u>	_____	_____	_____
4. <u>Other Applicable Costs:</u>	_____	_____	_____
5. <u>SUBTOTAL--Estimated Costs</u>	_____	_____	_____
6. <u>Less Proposed Cost Sharing</u> (if any)	_____	_____	_____
7. <u>Carryover Funds</u> (if any)			
a. Anticipated amount : _____			
b. Amount used to reduce budget	_____	_____	_____
8. <u>Total Estimated Costs</u>	_____	_____	XXXXXXXX
9. APPROVED BUDGET	XXXXXXX	XXXXXXX	_____

## **INSTRUCTIONS FOR BUDGET SUMMARY**

1. Direct Labor (salaries, wages, and fringe benefits): Attachments should list the number and titles of personnel, amounts of time to be devoted to the grant, and rates of pay.
2. Other Direct Costs:
  - a. Subcontracts: Attachments should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting.
  - b. Consultants: Identify consultants to be used, why they are necessary, the time they will spend on the project, and rates of pay (not to exceed the equivalent of the daily rate for Level IV of the Executive Schedule, exclusive of expenses and indirect costs).
  - c. Equipment: List separately. Explain the need for items costing more than \$5,000. Describe basis for estimated cost. General purpose equipment is not allowable as a direct cost unless specifically approved by the NASA Grant Officer. Any equipment purchase requested to be made as a direct charge under this award must include the equipment description, how it will be used in the conduct of the basic research proposed and why it cannot be purchased with indirect funds.
  - d. Supplies: Provide general categories of needed supplies, the method of acquisition, and the estimated cost.
  - e. Travel: Describe the purpose of the proposed travel in relation to the grant and provide the basis of estimate, including information on destination and number of travelers where known.
  - f. Other: Enter the total of direct costs not covered by 2a through 2e. Attach an itemized list explaining the need for each item and the basis for the estimate.
3. Facilities and Administrative (F&A) Costs: Identify F&A cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency official having cognizance. If unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.
4. Other Applicable Costs: Enter total explaining the need for each item.
5. Subtotal-Estimated Costs: Enter the sum of items 1 through 4.
6. Less Proposed Cost Sharing (if any): Enter any amount proposed. If cost sharing is based on specific cost items, identify each item and amount in an attachment.
7. Carryover Funds (if any): Enter the dollar amount of any funds expected to be available for carryover from the prior budget period. Identify how the funds will be used if they are not used to reduce the budget. NASA officials will decide whether to use all or part of the anticipated carryover to reduce the budget (not applicable to 2nd-year and subsequent-year budgets submitted for award of a multiple year award).
8. Total Estimated Costs: Enter the total after subtracting items 6 and 7b from item 5.



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**Certification Regarding Debarment, Suspension, and Other Responsibility Matters**  
**Primary Covered Transactions**

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This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211).

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
  - (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
  - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
  - (d) Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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### **Certification Regarding Lobbying**

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- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000 for each such failure.

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**Certification of Compliance with the NASA Regulations Pursuant to Nondiscrimination  
in Federally Assisted Programs**

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The (*Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant "*) hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1962 (20 U.S. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S. 794), and the Age Discrimination Act of 1975 (42 U.S. 16101 et seq.), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and hereby give assurance that it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

this assurance is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognized and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.